AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Figs. 1A-1D. This sheet which includes Figs. 1A-1D, replaces the original sheet including Figs. 1A-1D. For each of Figures 1A-1D, the legend "Prior Art" has been inserted.

REMARKS

Claims 1-20 were pending in this application. Claims 1 and 3 have been amended and claim 2 has been canceled. The specification has been amended at page 14, line 1 to correct an inadvertent typographical error, which is discussed in further detail below. Care has been exercised to avoid the introduction of new matter. Indeed, adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure and claims. Applicants submit that the present Amendment does not generate any new matter issue.

The Examiner is respectfully requested to expressly consider the Information Disclosure Statement submitted on July 18, 2002 and make of record the references cited on the PTO-1449. The Examiner is requested to forward a properly initialed copy of the PTO-1449 with the next Office action.

The Specification at page 13 line 1 has been amended to clarify that the substrate/workpiece is rapidly transferred to the stamping/imprinting tool such that its lower surface is supported by a heated bottom mold that is maintained at the same temperature as the heated top mold, namely ~ T_g. Support for the Amendment is found at page 13, lines 22-26 and Figures 3. Accordingly, entry of the amendment is respectfully requested.

The Examiner objected to Figures 1A-1D and indicated that the drawings should be designated with a "Prior Art" legend. Applicants have submitted concurrently herewith, a replacement sheet of drawings which includes a "Prior Art" legend for each of Figures 1A-1D. Accordingly, the Examiner is requested to reconsider and withdraw the drawing objection.

Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated over Chou (U.S. Pat. No. 5,820,769, hereinafter "Chou '769"). Applicants respectfully traverse.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the identical disclosure in a single reference of each element of a claimed invention, such that the identically claimed invention is placed into the possession of one having ordinary skill in the art. *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994). Moreover, in imposing the rejection under 35 U.S.C. § 102, the Examiner is required to specifically identify wherein an applied reference is perceived to identically disclose each feature of a claimed invention. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984). That burden has not been discharged. Moreover, there are significant differences between the claimed invention and the method disclosed by Chou '769 that would preclude the factual determination that Chou '769 identically describes the claimed inventions within the meaning of 35 U.S.C. § 102. Specifically, Chou '769 fails to disclose or remotely suggest the temperature of the stamping/imprinting tool is maintained substantially constant at a pre-selected elevated temperature lower than the pre-selected elevated temperature of the pre-heated workpiece, as required in independent claim 1 (amended). Rather, as acknowledged by the Examiner, Chou '769 does not disclose the heating of the stamping/imprinting tool. See Chou '769 at col. 4, lines 5-25. Accordingly, the rejection under 35 U.S.C. § 102 is not legally viable and should be withdrawn.

Claims 1-4 and 6-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou '769 in view of Chou (U.S. Pat. No. 5,772,905, hereinafter "Chou 905"). Applicants respectfully traverse the rejection for the reasons set forth *infra*.

Claims 1-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou '769 in view of Chou '905 and Ishida et al. (U.S. Pat. No. 6,347,016, hereinafter "Ishida"). Applicants respectfully traverse the rejection for the reasons set forth *infra*.

Independent claim 1, as amended, describes a method of performing thermal imprint lithography of a surface of a workpiece for forming a pattern therein. The method comprises pre-heating the workpiece to a pre-selected elevated temperature prior to inserting the workpiece in a stamping/imprinting tool for performing the thermal imprint lithography. The interval for thermal cycling of the stamping/imprinting tool between higher and lower temperatures is eliminated or at least reduced. The temperature of the stamping/imprinting tool is maintained substantially constant at a pre-selected elevated temperature lower than the pre-selected elevated temperature of the pre-heated workpiece.

In an alternative embodiment, independent claim 15, recites in pertinent part, that the temperature of the stamper/imprinter tool is maintained at a pre-selected first high temperature close to a glass transition temperature T_g of the layer of thermoplastic material on the first, upper surface of the substrate and that the substrate is heated to a pre-selected second high temperature which is greater than the pre-selected first high temperature of the stamper/imprinter and greater than the glass transition temperature T_g of the layer of thermoplastic material on the first, upper surface of the substrate.

The Examiner asserted that Chou'769 does not disclose the heating of the tool, but that Chou '905 discloses that it is known to heat both the workpiece 20 and the tool 10. The Examiner concluded that it would have been obvious to one with ordinary skill in the art to heat the tool because Chou '905 teaches that this is a "useful technique for thermal imprint lithography." Applicants respectfully traverse.

Chou '769 discloses that the polymer layer 70 over the substrate 72, should be at a temperature slightly below the melting temperature of the polymer layer, which allows pillars 76 on mold 74 to form recesses 78 in the polymer layer 70. Chou '769 neither discloses nor remotely suggests that the mold 74 is heated, much less disclose that the mold is maintained substantially constant at a pre-selected elevated temperature lower than the pre-selected elevated temperature of the pre-heated substrate. Further, Chou '905 at col. 4, line 65 through col. 5, line 7, discloses that both the mold 10 and polymer layer 20 were first heated to a temperature (200° C) higher than the glass transition temperature of the polymer (105° C). Moreover, the mold 10 and features 16 were compressed against the polymer film 20 and held until the temperature dropped below the polymer's glass transition temperature.

The Examiner has failed to explain where either reference discloses that the temperature of the stamping/imprinting tool is maintained substantially constant at a pre-selected elevated temperature lower than the pre-selected elevated temperature of the pre-heated workpiece. Applicants submit that neither reference discloses that both the tool and the workpiece are each heated at an elevated temperature and that the elevated temperature of the tool is maintained at a constant temperature below that of the workpiece. Chou '769 only discloses the heating of the polymer layer and at a temperature below the melting temperature of the polymer, while in contrast, Chou '905 discloses heating both the mold and the polymer layer to a temperature greater than the glass transition temperature of the polymer. Thus, even if the references were in some way combined, they do not teach or remotely suggest every limitation of the claimed invention. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily

available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Moreover, the Examiner's reliance on result-effective variable for optimization is erroneous. Neither reference discloses the means by which the elevated temperature of the tool can be maintained at a constant temperature below that of the heated workpiece. Chou '905 appears to heat both the tool and the workpiece simultaneously and to equivalent temperatures. Moreover, Chou '769 does not even elevate the temperature of the tool, but rather, only the polymer is heated. The Examiner cannot properly rely on result-effective variables for optimization when there is no motivation to combine references. The Examiner offers only a restatement of the teachings of reference, without any hint as to why one of ordinary skill in the art would combine two references with mutually exclusive teachings. *In re Rouffet*, 149 F.3d 1350, 47 USPQ2d 1453 (Fed. Cir. 1998). The Examiner is obliged to explain why one having ordinary skill in the art would have been realistically led to modify a particular reference to arrive at a claimed invention. This burden has not been discharged and, therefore, the rejection is not legally viable and should be withdrawn. Lastly, Ishida does nothing to remedy the above deficiencies of either Chou '769 and/or '905. Accordingly claims 1 and 3-20 are free from the applied art.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY

Brian K. Seidleck
Registration No. 51,321

600 13th Street, N.W.
Washington, DC 20005-3096
(202) 756-8000 BKS:apr
Facsimile: (202) 756-8087
Date: January 7, 2004